



Environmental impacts of electricity self-consumption from organic photovoltaic battery systems at industrial facilities in Denmark

Chatzisideris, Marios Dimos; Laurent, Alexis; Hauschild, Michael Zwicky; Krebs, Frederik C

Published in:
CIRP ANNALS 2017

Publication date:
2017

Document Version
Peer reviewed version

[Link back to DTU Orbit](#)

Citation (APA):
Chatzisideris, M. D., Laurent, A., Hauschild, M. Z., & Krebs, F. C. (2017). Environmental impacts of electricity self-consumption from organic photovoltaic battery systems at industrial facilities in Denmark. In *CIRP ANNALS 2017* (Vol. 66) <https://www.cirp.net/component/cirppubli/?task=searchpublic&year=2017>

General rights

Copyright and moral rights for the publications made accessible in the public portal are retained by the authors and/or other copyright owners and it is a condition of accessing publications that users recognise and abide by the legal requirements associated with these rights.

- Users may download and print one copy of any publication from the public portal for the purpose of private study or research.
- You may not further distribute the material or use it for any profit-making activity or commercial gain
- You may freely distribute the URL identifying the publication in the public portal

If you believe that this document breaches copyright please contact us providing details, and we will remove access to the work immediately and investigate your claim.

Environmental impacts of electricity self-consumption from organic photovoltaic battery systems at industrial facilities in Denmark

Marios D. Chatzisideris, Alexis Laurent, Michael Z. Hauschild (1), Frederik C. Krebs

STC A, 66/1/2017, P.45

Keywords: CO2 emission, Lifecycle, Organic photovoltaics

Abstract : Organic photovoltaics (OPV) show promise of greatly improving the environmental and economic performance of PV compared to conventional silicon. Life cycle assessment studies have assessed the environmental impacts of OPV, but not under a self-consumption scheme for industrial facilities. We investigate the life cycle environmental impacts of electricity self-consumption from an OPV system coupled with a sodium/nickel chloride battery at an iron/metal industry in Denmark. Results show that an OPV system without storage could decrease the carbon footprint of the industry; installation of the battery increases climate change and human toxicity impacts. We discuss sensitive modelling parameters and provide recommendations.